



Response to Official Communication
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J. D. Butch

Reference: Application No. 09/973095 Applicant: Jerry Chi Wang Date of Communication: 4/22/2003
Title of Invention: Effluent Discharge System Facilitates Discharge of Sediments and Powering of Underwater Machinery

This is in response to your 4/22/2003 notice on the requirement of a marked-up version for the amended claims.
Claims of subject application are amended as follow:

Claim 1 – 3 (canceled)

Claim 4 (new) An effluent discharge system for discharging water and sediments from dam or reservoir comprising:

- the intake port disposed at or close to the bottom of the reservoir;
- the discharge port on the downstream side of the dam;
- the connecting conduit which passes through the dam wall below the reservoir water level to transport the discharge water and sediments to the dam downstream side;
- a valve at a convenient point within the connecting conduit or in the piping downstream of said discharge system for shut off or for flow regulation;

whereas the end of the discharge port is disposed at an elevation height sufficiently below the reservoir water level to avail adequate hydrostatic pressure at the intake port to induce a strong discharge water flow to stir up and carry sediments with it through the connecting conduit to the dam down stream side where the discharging sediments laden water may be fed to a hydroelectric generator for power generation, discharged into an irrigation system for agricultural use, or collected in a separator for mineral recovery,

Claim 5 (new) The method of discharging sediments from reservoir or dam by withdrawing the reservoir discharge water from the reservoir bottom at high velocity to cause the discharge water flow to stir up and carry sediments along through the conduit means to the dam downstream side, and by manipulating the elevation height of the discharge end of the conduit to make use of the hydraulic head of the reservoir water as the primary energy source for the task as provided by Claim 4.

Claim 6 (new) A movable hydraulic powered dredging system, modified from a Claim 4 system with the addition of a hydraulic powered machine assembly and other modifications listed below, comprises:

- a hydraulic powered machine assembly at the conduit intake end incorporating a hydraulic drive unit mounted in a housing and a dredge head attached to a common drive shaft;
- a conduit means consisting of a flexible intake pipe section which runs between the dredge assembly housing outlet and a pipe fitting by the dam wall, a rigid pipe section passing through the dam wall, and

a discharge pipe section extending from the dam wall on down stream side for transport the discharge water and the entrained sediments to the dam down stream side;

- a valve located at a convenient location in the conduit means for shut off or flow throttling;
- a support and manipulating means such as that by suspending the dredge assembly housing with cables from a mobile overhead crane or from a floating barge to support and move the hydraulic powered dredge assembly about the reservoir;

wherein the end of the discharge pipe section is disposed at an elevation height sufficiently below the reservoir water level to avail adequate hydrostatic head at the intake of the hydraulic drive unit to induce a strong discharge water flow to drive the dredge head and to entrain and carry the sediments through the conduit means to the dam down stream side.

Claim 7 (new) The hydraulic drive machine assembly of Claim 6 wherein the common drive shaft is attached with a power transmission device such as a sprocket or a speed reducer for powering a detached machinery or mechanical apparatus like a grinder, an elevator, or a conveyor.

Respectfully submitted,

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